

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 90 - 101

NPDES PERMIT NO. CA0038024

WASTE DISCHARGE REQUIREMENTS FOR:

FAIRFIELD-SUISUN SEWER DISTRICT,  
FAIRFIELD, SOLANO COUNTY, CALIFORNIA

The California Regional Water Quality Control Board,  
San Francisco Bay Region (hereinafter Board), finds that:

1. The Fairfield-Suisun Sewer District (hereinafter Discharger), submitted an application dated November 8, 1989, for reissuance of waste discharge requirements and a permit to discharge wastewater to waters of the United States under the National Pollutant Discharge Elimination System (NPDES).
2. The Discharger owns and operates the Fairfield-Suisun Subregional Wastewater Treatment Plant, located at 1010 Chadbourne Road, Fairfield, Solano County, California. The plant provides tertiary level treatment for combined domestic and industrial wastewater from the Cities of Fairfield and Suisun City. The Discharger's service district has a present population of 95,534, and includes Travis Air Force Base and an Anheuser-Busch brewery. Industrial sources contribute approximately 28 percent of the annual influent flow to the plant. The treatment plant has an average dry weather flow design capacity of 17.5 million gallons per day (mgd). The plant presently discharges an average dry weather flow of 11.6 mgd, and an annual average effluent flow of 12.8 mgd.
3. Treated effluent is reclaimed for irrigation and discharged to surface waters. During dry weather a portion of the treated effluent is reclaimed for agricultural irrigation through the Solano Irrigation District. During the winter, part of the effluent is used for management of duck club ponds in Suisun Marsh. The remainder of the treated effluent is discharged to Boynton Slough which is a tributary to Suisun Slough and Suisun Bay. Presently, approximately 40 % of the annual average effluent flow is discharged to reclamation, and 60 % is discharged to Boynton Slough. The discharge to Boynton Slough is into shallow water, with the outfall located at the shoreline of the slough, and submerged under all conditions except possibly during extreme low tides.

4. Boynton Slough and the managed duck ponds of Suisun Marsh are waters of the State and of the United States. The names and locations of the effluent discharge points are given below:

<u>Discharge Name</u>	<u>Discharge Code</u>	<u>Latitude</u>	<u>Longitude</u>
Boynton Slough Outfall	E-001	38° 12' 33"	122° 03' 24"
Duck Club Turnout No. 1	E-002	38° 12' 52"	122° 03' 56"
Duck Club Turnout No. 2	E-003	38° 12' 35"	122° 03' 29"

5. The wastewater treatment process presently consists of the following:

Influent receives preliminary treatment by comminution (3 units) and grit removal (2 aerated chambers), and then primary sedimentation (4 rectangular basins). Primary effluent receives biological treatment by roughing filters (2 oxidation towers), and then intermediate clarification (2 circular clarifiers). Intermediate effluent then receives biological treatment using an activated sludge process (4 aeration basins) which incorporates nitrification, followed by secondary clarification (4 circular clarifiers).

Secondary-treated effluent is stored in balancing reservoirs (2 reservoirs; 12.7 million gallons (MG) total effective volume), and is then pumped to the tertiary filters (8 dual-media filters, anthracite and sand, with chemical coagulation). Tertiary treated effluent is disinfected using chlorine (2 contact tanks), and dechlorinated using sulfur dioxide. Effluent flow is measured through a parshall flume, and the flow is then split to either the final effluent holding reservoirs (3 reservoirs; 20.4 MG total volume) or to the Boynton Slough outfall. Effluent for reclamation is either pumped from the final holding reservoirs to the Solano Irrigation District distribution system, or is diverted from the effluent pipe leading to the Boynton Slough outfall, as needed.

6. The solids handling process presently consists of the following:

Intermediate clarifier sludge and waste activated sludge are combined and thickened by dissolved air flotation thickeners (2 units). Thickened sludge and sludge from the primary sedimentation basins is stabilized by anaerobic digestion (2 digesters), and then dewatered either by mechanical filter presses (2 plate and frame presses) or by open air drying beds (10 acres total area). Dewatered and dried sludge is hauled offsite for disposal at an authorized landfill site (Portrero Hills Landfill). Annual sludge production in 1989 was 5,962 dry tons. Methane gas from the digestors is recovered, stored (1 spherical tank), and used to operate electrical generators (2 engines) for in-plant electrical needs.

7. The discharges to Boynton Slough and the managed duck ponds of Suisun Marsh are presently governed by Waste Discharge Requirements in Order No. 85-53, adopted by the Board on May 15, 1985, which serves as an NPDES Permit, and Order No. 86-23 adopted on April 16, 1986, which amended Order No. 85-53.
8. Discharges of reclaimed effluent to land are governed by Wastewater Reclamation Requirements in Order No. 78-43, adopted by the Board on June 20, 1978. These requirements are expected to be updated by the Board in August 1990.
9. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the California State Water Resources Control Board (State Board) approved the revised Basin Plan on May 21, 1987. The provisions of this permit are consistent with the objectives of the revised Basin Plan.
10. The Basin Plan identifies potential and existing beneficial uses of surface waters and marshes in the San Francisco Bay Basin Region, water quality objectives, effluent limitations and discharge prohibitions for waste discharges to surface waters, which are applicable to this discharge.
11. The State Board document, 'Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh' includes objectives applicable to the waters of the Suisun Marsh.
12. The beneficial uses of Suisun Slough (SS), Suisun Bay (SB) and contiguous waters identified in the Basin Plan include:
  - a. Industrial Service Supply (SB)
  - b. Navigation (SB)
  - c. Water Contact Recreation (SB & SS)
  - d. Non-Contact Water Recreation (SB & SS)
  - e. Commercial and Sport Fishing (SB)
  - f. Warm Fresh Water Habitat (SS)
  - g. Wildlife Habitat (SB & SS)
  - h. Preservation of Rare and Endangered Species (SB)
  - i. Fish Migration (SB)
  - j. Fish Spawning (SB & SS)
  - k. Estuarine Habitat (SB)
13. The beneficial uses of Suisun Marsh identified in the Basin Plan include:
  - a. Water Contact Recreation
  - b. Non-Contact Water Recreation
  - c. Wildlife Habitat
  - d. Preservation of Rare and Endangered Species
  - e. Estuarine Habitat
  - f. Fish Migration
  - g. Fish Spawning
  - h. Freshwater Marsh
  - i. Brackish Marsh

14. Discharge to Boynton Slough is contrary to two of the Discharge Prohibitions identified in the Basin Plan. The Basin Plan states, in part:

"It shall be prohibited to discharge:

1. Any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any tributary thereof.

...

3. Any wastewater which has particular characteristics of concern to beneficial uses to Suisun Marsh during the dry weather period of the year. "

15. The Basin Plan states that exceptions to the above prohibitions will be considered for discharges where:

- "a. An inordinate burden would be placed on the discharger relative to the beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means, such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability; or
- b. A discharge is approved as part of a reclamation project; or
- c. It can be demonstrated that net environmental benefits will be derived as a result of the discharge. "

16. The Basin Plan further states that:

" Significant factors to be considered by the Regional Board in reviewing requests for exceptions will be the reliability of the discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water and the environmental consequences of such discharges."

17. The Discharger was previously granted, in Order No. 85-53, an exception to the prohibitions stated in Finding 14 above, provided that the discharge affords a net environmental benefit and the Discharger complies with the requirements of the permit. The requirements of that permit included:

- a. Use the maximum amount of wastewater for irrigation.
- b. Prepare basins for use as emergency storage basins.
- c. Complete technical report, "Investigation of Methods for Maximizing use of Wastewater for Irrigation", and implement the report's recommendations.

- d. Conduct an investigation and complete a technical report documenting effects of the discharge on water quality conditions and protection of beneficial uses, and then implement the report's recommendations.
  - e. Construct a freshwater marsh and/or storage basins to minimize adverse impacts of plant upset on receiving waters, if determined to be necessary by the required study of water quality and protection of beneficial uses.
18. The Discharger achieved compliance with the required tasks of the NPDES Permit, Order No. 85-53, as described below:
- a. Effluent discharged for reclamation through the Solano Irrigation District distribution system has increased from 22 %, in 1985, to 40 %, in 1989, of the plant's annual average effluent flow.
  - b. In 1987 the Discharger completed construction of flow equalization and storage facilities which included the required renovation of existing basins for emergency storage, as well as addition of a flow equalization clarifier and use of two existing on-site lagoons for additional storage capacity. These facilities provide storage capacity of 12.6 million gallons, and can be used for storage of peak wet weather flows, or for emergency storage in the unlikely event of a plant upset.
  - c. In 1986 the Discharger completed the required technical report, Investigation of Methods for Maximizing Use of Reclaimed Water for Irrigation, May 1986. The report documents the Discharger's efforts to increase reclamation of its effluent, as well as the various contractual, legal and economic constraints which restrict the Discharger's reclamation capabilities.
  - d. In 1987 the Discharger completed the required technical report about the effects of the discharge on water quality and protection of beneficial uses (Technical Report on Water Quality, Fairfield-Suisun Sewer District Subregional Wastewater Treatment Plant, September 1987). The report evaluated existing water quality data to determine the discharge's impacts on Boynton Slough, and the degree of environmental benefit, if any, from the effluent discharge.

The report demonstrated that the discharge has some measureable local effects in Boynton Slough, but that these effects do not significantly impair any beneficial uses. Those beneficial uses related to the input of fresh water were found to be more fully achieved as a result of the effluent discharge. The report concluded that, overall, on a year-round basis, the discharge affords a net environmental benefit to Boynton Slough and the Suisun Marsh, and that no need to modify existing wastewater management practices was indicated.

19. The Discharger has awarded a contract and has commenced construction on additional facilities to provide increased storage capacity for peak wet weather flows and to provide improved flexibility and redundancy in the treatment process. These facilities, identified by the Discharger as the Stage 1A project, are expected to be completed by late 1991 and include a 45 MG capacity earthen equalization basin, an equalization flow clarifier with comminution and prechlorination equipment, and a third oxidation tower. The equalization facilities will increase storage capacity from 12.6 MG to 45 MG and provide containment and treatment of all wastewater flows up to a twenty-year recurrence interval storm event through 1996. This approach to wet weather flow management is in accord with the Basin Plan's wet weather overflow control strategy. The third oxidation tower will provide increased redundancy in the treatment process and allow for servicing of any one tower, without reducing treatment performance or reliability.
20. Given the above considerations, exceptions to the Basin Plan discharge prohibitions described in Finding 14 above appear to be warranted for the discharges of tertiary treated effluent to Boynton Slough and the managed duck ponds of Suisun Marsh, provided the Discharger continues to:
- a. Provide high quality effluent;
  - b. Operate all treatment facilities to assure high reliability and redundancy;
  - c. Provide effluent to the managed duck ponds of Suisun Marsh; and
  - d. Work to use the maximum feasible amount of reclaimed effluent for irrigation, and minimize discharges to Boynton Slough during dry weather.
21. The revised Basin Plan contains new effluent limitations for selected toxic pollutants such as heavy metals, including more stringent limits for discharges to shallow waters. For cases where compliance with the new limits is not feasible, the Basin Plan includes criteria under which a discharger may propose alternate effluent limits. The new shallow water limits apply to the discharges governed by this Order. The Discharger has indicated that it may not be able to comply with the new shallow water limits for lead, nickel, silver and zinc, and has proposed to conduct a study to evaluate alternate effluent limits for these four metals. This Order establishes a time schedule for completion of this study and achieving compliance with either the Basin Plan shallow water limits or alternate limits approved by the Board. This Order also establishes performance-based interim limits for these four metals during the compliance time schedule period.

22. The Discharger has implemented and is maintaining an Environmental Protection Agency (EPA) approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR 403) and this Board's Order No. 89-179.
23. The Discharger has completed preliminary design of treatment facilities necessary to accomodate the projected service area growth through the year 2003, as described in the report, Final Report - Stage 1 and 2 Expansion Preliminary Design, Fairfield-Suisun Wastewater Treatment Plant, December 19, 1989, prepared by James M. Montgomery Consulting Engineers.

Completion of the Stage 1A and 1B projects is intended to increase the average dry weather flow treatment capacity to 20.0 million gallons per day (mgd). This capacity is estimated to handle projected growth in the service area through the year 1997. Completion of the Stage 2 project is intended to increase the average dry weather flow treatment capacity to 22.5 mgd, which is anticipated to handle projected growth through the year 2003.

24. This permit does not allow an increase in treatment plant discharge beyond the presently permitted average dry weather flow capacity of 17.5 mgd. The Discharger will need to apply to the Board for any increase in the permitted average dry weather flow treatment and discharge capacity. Such application will need to include, but may not be limited to, engineering reports documenting adequate reliability, capacity and performance of the completed improvements, and documentation that increased discharges will not result in degradation of receiving waters, or adverse impacts on beneficial uses of receiving waters, in accordance with State and Federal regulations.
25. An Operation and Maintenance Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all equipment, facilities, recommended operation strategies, process control monitoring, and maintenance activities. In order to remain a useful and relevant document, the manual should be kept updated to reflect significant changes in the treatment facilities or their operations.
26. This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (California Environmental Quality Act) pursuant to Section 13389 of the California Water Code.

27. The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity for a public hearing and the opportunity to submit their written views and recommendations.
28. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger, Fairfield-Suisun Sewer District, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of wastewater at any point where it does not receive a minimum initial dilution of 10:1, or into dead-end sloughs and similar confined waters, is prohibited, except as defined below.

Based on Findings 18, 19 and 20 above, exceptions to this prohibition and the prohibition against discharge to Suisun Marsh during dry weather are granted, for the discharges described in Findings 2, 3, and 4 of this Order. These exceptions are conditional upon the discharge continuing to afford a net environmental benefit, and the Discharger's compliance with all requirements of this Order.

2. The bypass or overflow of untreated or partially treated wastewater to waters of the State either at the treatment plant or from the collection system or pump stations tributary to the treatment plant is prohibited.
3. The discharge of average dry weather flows greater than 17.5 million gallons per day is prohibited. Average dry weather flow shall be determined over three consecutive dry weather months each year.



## B. EFFLUENT LIMITATIONS

1. Effluent discharged shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>	<u>Instan- taneous Maximum</u>
a. Biochemical Oxygen Demand	mg/l	10	15	20	--
b. Total Suspended Solids	mg/l	10	15	20	--
c. Settleable Solids	ml/l-hr	0.1	--	--	0.2
d. Oil and Grease	mg/l	5	--	10	--
e. Ammonia Nitrogen	mg/l	2.0	3.0	4.0	--
f. Total Chlorine Residual (1)	mg/l	--	--	--	0.0
g. Turbidity	NTU	--	--	10	--

(1) Requirement defined as below the limit of detection in standard test methods.

2. The monthly average of the biochemical oxygen demand (five-day, 20° C) and suspended solids values, by weight for effluent samples collected in a during a calendar month shall not exceed 15 percent of the monthly average of the respective values, by weight, for influent samples collected at approximately the same times during the same period (85 percent removal, monthly average minimum).
3. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.
4. The moving median value for the Most Probable Number (MPN) of total coliform bacteria in any seven (7) consecutive effluent samples shall not exceed 2.2 MPN per 100 milliliters (2.2 MPN/100 ml). Any single sample shall not exceed 23 MPN/100 ml.
5. The survival of test fishes acceptable to the Board in 96-hour bioassays of the effluent shall be a median of 90 percent survival of three consecutive samples, and a 90 percentile value of not less than 70 percent survival based on the ten most recent consecutive samples.

6. Representative samples of the effluent shall not exceed the following limits in micrograms per liter (ug/l): (1) (2)

<u>Constituent</u>	<u>Daily Average</u>	<u>Daily Average Interim Limits</u>
a. Arsenic .....	20	
b. Cadmium .....	10	
c. Chromium(VI) (3) ...	11	
d. Copper .....	20	
e. Lead .....	5.6 (4) .....	20 (5)
f. Mercury .....	1	
g. Nickel .....	7.1 (4) .....	15 (5)
h. Silver .....	2.3 (4) .....	6 (5)
i. Zinc .....	58 (4) .....	100 (5)
j. Cyanide .....	25	
k. Phenols .....	500	
l. PAHs (6) .....	15	

- (1) These limits are based on a combination of fresh and salt water quality objectives, technological achievability, limits of detection, and limited allowance for dilution. These limits are intended to be achieved through a combination of Best Available Technology, source control, and application of pretreatment standards.
- (2) Daily Average means the average of all flow-weighted composite samples collected over a 24-hour period.
- (3) The Discharger may at its option meet this limit as total chromium.
- (4) The Discharger shall demonstrate compliance with the indicated Daily Average limits or respective Alternate Effluent Limits according to the compliance time schedule set forth in Provision E.8. of this Order.
- (5) These Daily Average Interim Limits are based on treatment plant performance, and shall apply in place of the corresponding Daily Average limits until compliance is demonstrated with the Daily Average limits or respective Alternate Effluent Limits in accordance with Provision E.8. of this Order.
- (6) Polynuclear Aromatic Hydrocarbons (PAHs). This limit applies to the summation of the detected levels of the individual constituent PAHs as identified by EPA Method 610 (ie Total PAHs). If a discharge exceeds this limit, the concentrations of individual constituents shall be reported.

### C. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:
  - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
  - b. Bottom deposits or aquatic growths;
  - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
  - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
  - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
  - a. Dissolved Oxygen            7.0 mg/l, minimum.  
  
The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentrations than those specified above, then the discharge shall not cause further reduction in the ambient dissolved oxygen concentration.
  - b. Dissolved Sulfide            0.1 mg/l, maximum.
  - c. pH                            Variation from normal ambient pH by more than 0.5 pH units.
  - d. Un-ionized Ammonia           0.025 mg/l as N, annual median;  
                                     0.16 mg/l as N, maximum.
3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

#### D. SLUDGE HANDLING AND DISPOSAL REQUIREMENTS

1. All sludge treatment, processing, storage or disposal activities under the Discharger's control shall be in compliance with current state and federal regulations.
2. The Board may amend this Order prior to the expiration date if necessary to accomodate changes in applicable state or federal sludge regulations, or changes in the Discharger's sludge management procedures.
3. The Discharger shall notify the Board, in writing, of any significant changes in its sludge disposal practices.
4. Permanent sludge storage or disposal activities are not authorized by this permit. A Report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.
5. The treatment, processing, storage or disposal of sludge conducted by the Discharger shall not create a condition of pollution or nuisance as defined in Section 13050 (l) and (m) of the California Water Code.
6. The treatment, processing, storage or disposal of sludge by the Discharger shall not cause waste material to be discharged to, or deposited in, waters of the State.
7. Sludge storage facilities under the Discharger's control shall be operated and maintained in such a manner as to provide adequate protection from surface runoff, erosion, or other conditions which would cause drainage from the waste materials to escape from the storage facility site(s).
8. The discharge to the Discharger's sludge storage facilities of waste other than sewage sludge produced by the Discharger's wastewater treatment facility is prohibited. An exception to this requirement is granted for the Discharger's use of on-site sludge lagoons to temporarily store peak wet weather flows, as necessary. This exception shall remain in effect until the wet weather flow handling facilities being constructed as part of the Stage 1A project, described in Finding 19 above, are completed and operational.
9. The storage of sludge shall not cause degradation of groundwaters.
10. General Provisions A.9. and A.12. of this Board's "Standard Provisions and Reporting Requirements", dated December 1986, apply to sludge handling and disposal practices.
11. The term 'sludge' as used in this permit is defined in Definition E.18 of this Board's "Standard Provisions and Reporting Requirements", dated December 1986.

#### E. PROVISIONS

1. Requirements prescribed by this Order superscede the requirements prescribed by Orders No. 85-53 and 86-23. Orders No. 85-53 and 86-23 are hereby rescinded.
2. The Discharger shall comply with all sections of this Order immediately upon adoption.
3. The Discharger shall comply with all applicable items of the attached "Standard Provisions and Reporting Requirements", dated December, 1986.
4. The Discharger shall comply with the Self-Monitoring Program for this Order as adopted by the Board and as may be amended by the Executive Officer.
5. Where concentration limitations in mg/l or ug/l are contained in this Permit, the following Mass Emission Rates also apply:

$$\begin{aligned} \text{Mass Emission Rate, in kg/day} &= (\text{CL}) \times (3.785) \times (\text{Q}) \\ &[\text{ in lb/day} = (\text{CL}) \times (8.345) \times (\text{Q}) ] \end{aligned}$$

where: CL = Concentration Limit, in mg/l;  
3.785 = conversion factor, for kg/day;  
8.345 = conversion factor, for lb/day;  
Q = Discharge Flow Rate, in mgd, averaged over  
the time interval to which the limit applies.

6. The Discharger shall comply with Discharge Prohibition A.1. in accordance with the following:
  - a. Continue to operate the treatment facility to produce the highest quality effluent possible, consistent with good operating practices.
  - b. Continue to maintain and operate treatment facilities in a manner which maximizes reliability of unit processes;
  - c. Continue to provide high quality effluent on a seasonal basis (typically October through May), to assist in management of the duck club ponds of Suisun Marsh; and
  - d. Continue to work to use the maximum feasible amount of reclaimed wastewater for irrigation, and minimize discharges to Boynton Slough during dry weather.
7. Compliance with Effluent Limitation B.5. shall be determined using two test species in parallel, 96-hour flow-through effluent bioassays which use undiluted, dechlorinated effluent. One test specie shall be three-spine stickleback, and the other shall be either rainbow trout or fathead minnow.

8. Compliance with the Daily Average limits listed in Effluent Limitations B.6.e, g, h, and i of this Order (for Lead, Nickel, Silver, and Zinc, respectively), or respective Alternate Effluent Limits, shall be achieved in accordance with the following time schedule:

Task

a. Discharge Impact Investigation Study Plan

Submit Study Plan, acceptable to the Executive Officer, for an investigation, including receiving water monitoring, to assess impacts of the discharge of the metals listed in Effluent Limitation B.6. on receiving water quality and beneficial uses.

Compliance Date: November 15, 1990

b. Discharge Impact Investigation Quarterly Reports

Submit quarterly progress reports on the status of the investigation identified by the above Study Plan, including accumulated monitoring data.

Compliance Dates: April 1, 1991  
July 1, 1991  
October 1, 1991

c. Receiving Water Monitoring

Complete receiving water monitoring for all of the metals listed in Effluent Limitation B.6., in accordance with the above Study Plan.

Compliance Date: September 1, 1991

d. Source Control Investigation

Submit a report, acceptable to the Executive Officer, of an investigation to determine if all sources of lead, nickel, silver and zinc are being controlled through the application of all reasonable treatment and source control measures. The report shall include an assessment of treatment plant removal efficiencies for these metals.

If the investigation determines that all sources of the metals in question are not being adequately controlled, then the report shall include a schedule of actions, acceptable to the Executive Officer, which will assure implementation of all reasonable treatment and source control measures.

Compliance Date: July 1, 1991

e. Source Control Investigation Quarterly Reports

Submit quarterly progress reports on the status of the investigation identified in Task d. above.

Compliance Dates: January 1, 1991  
April 1, 1991

NOTE: If additional receiving water monitoring and/or additional source control studies, beyond those identified in Tasks a. through e. above, are determined necessary by the Executive Officer, then the compliance schedule given below in Tasks f. and g. do not apply, and shall be replaced by the schedule given in Tasks h. through k.

f. Alternate Effluent Limits Proposal

Submit Alternate Effluent Limits Proposal, acceptable to the Executive Officer. This Proposal shall include:

- i. An assessment of the impacts of the proposed alternate limits on beneficial uses of the receiving waters; and
- ii. A demonstration that the costs of additional measures necessary to comply with the Daily Average Limits do not bear a reasonable relationship to the level of beneficial uses protected by such additional measures; and
- iii. A report describing a program to identify, develop and implement control strategies for non-point sources of pollution contributory to the discharge receiving waters.

Compliance Date: February 3, 1992

g. Achieve compliance with the Daily Average limits, or Alternate Effluent Limits approved by the Board.

Compliance Date: June 1, 1992

NOTE: If studies in addition to those identified in Tasks a. through e. are determined necessary by the Executive Officer, then the following schedule, Tasks h. through k., shall apply:

h. Submit Study Plan (Phase II), acceptable to the Executive Officer, for additional receiving water monitoring and/or additional source control studies.

Compliance Date: November 1, 1991

i. Submit quarterly reports on the status of the Phase II studies, including accumulated monitoring data.

Compliance Dates: April 1, 1992  
July 1, 1992  
October 1, 1992

- j. Submit Alternate Effluent Limits Proposal acceptable to the Executive Officer. This Proposal shall include the elements described above in parts i, ii, and iii of Task f.

Compliance Date: February 1, 1993

- k. Achieve compliance with the Daily Average limits, or Alternate Effluent Limits approved by the Board.


Compliance Date: June 1, 1993.

9. The tasks required by Provision E.8. above shall be completed on or before the indicated compliance date. If completion of any of the required tasks will not be achieved by the indicated compliance date, then the discharger shall submit a report describing the reasons for such noncompliance, and an estimate of the date when compliance will be achieved. The Discharger shall notify the Board by letter when it has returned to compliance with the time schedule.
10. The Board may modify, or revoke and reissue, this Order and Permit if present or future investigations demonstrate that the discharges governed by this Order are causing or significantly contributing to adverse impacts on water quality and/or beneficial uses of the receiving waters.
11. Violations of Prohibitions A.1. and A.2. of this Order which occur as a result of wet weather flows in excess of a 20-year recurrence interval wet weather event shall be evaluated by the Board on a case by case basis, taking into account actions taken by the Discharger to prevent such violations from occurring.
12. The Discharger shall review, and update as necessary, its Operations and Maintenance Manual, annually, or within 90 days of completion of any significant facility or process changes. The Discharger shall submit to the Board, by April 15th of each year, a letter describing the results of the review process including an estimated time schedule for completion of any revisions determined necessary, and a description or copy of any completed revisions.
13. The Discharger shall review and update as necessary, by December 31, annually, its contingency plan as required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.



14. The Discharger shall implement and enforce its approved pretreatment program in accordance with this Board's Order No. 89-179 and its amendments thereafter. The Discharger's responsibilities include, but are not limited to, the following:
- a. Implementation of the pretreatment program in accordance with the legal authorities, policies, procedures, and financial provisions described in the General Pretreatment Regulations (40 CFR 403) and the Discharger's approved pretreatment program including subsequent modifications to the program.
  - b. Enforcement of National Pretreatment Standards (e.g. prohibited discharges, categorical Pretreatment Standards, and local limits) in accordance with 40 CFR 403.5, and Sections 307(b) and 307(c) of the Clean Water Act.
  - c. Submission of annual and quarterly reports to the EPA the State Board, and the Board as described in this Board's Order No. 89-179 and its amendments thereafter.
15. This Order expires July 18, 1995. The Discharger must file a Report of Waste Discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.
16. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after the date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objections. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on July 18, 1990.

  
STEVEN R. RITCHIE  
Executive Officer

Attachments:

- o Self-Monitoring Program (Part A, and Part B with Table 1)
- o Standard Provisions and Reporting Requirements, December 1986
- o Resolution No. 74-10

[File No. 2129.2005]  
[Originator/BDA]  
[Reviewer/RJC]

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

\_\_\_\_\_FAIRFIELD-SUISUN SEWER DISTRICT\_\_\_\_\_  
\_\_\_\_\_FAIRFIELD, SOLANO COUNTY, CALIFORNIA\_\_\_\_\_

NPDES NO. CA0038024

ORDER NO. 90 - 101

CONSISTS OF

PART A, dated December 1986

AND

PART B

## PART B

### (SELF-MONITORING PROGRAM for FAIRFIELD-SUISUN SEWER DISTRICT)

#### I. DESCRIPTION OF SAMPLING STATIONS

##### A. INFLUENT

<u>Station</u>	<u>Description</u>
A	At a point in the treatment facilities headworks at which all waste tributary to the system is present and preceding any phase of treatment.

##### B. EFFLUENT

<u>Station</u>	<u>Description</u>
E-001	Boynton Slough Outfall.
E-001-A	At a point in the discharge from the treatment facilities following disinfection (chlorination), at which all waste tributary to the outfalls (E-001, 002, 003, & 004) is present.
E-001-S	At a point in the discharge from the treatment facilities following sulfonation (dechlorination).
E-002	Duck Club Turnout No. 1.
E-003	Duck Club Turnout No. 2.
E-004	At a point in the discharge from the Final Effluent Holding Reservoirs prior to the reclaimed water distribution system.

##### C. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
C-1 (S11F)	At a point in Boynton Slough about 100 feet downstream (ie towards Suisun Slough) from the discharge outfall.
C-2 (S11R)	At a point in Boynton Slough about 100 feet downstream from where the Southern Pacific Railroad tracks cross over the slough.

- C-3 At a point in Boynton Slough located about 1800 feet downstream from the discharge outfall, as shown on the location map included as Attachment A of this self-monitoring program.
- C-4 (S11) At a point in the mouth of Boynton Slough as it enters Suisun Slough.
- C-5 (S45A) At a point in the mouth of Sheldrake Slough as it enters Suisun Slough.
- C-6 (S3) At a point in the mouth of Peytonia Slough as it enters Suisun Slough.
- C-R-1 (S3R) At a point in Peytonia Slough about 100 feet downstream from where the Southern Pacific Railroad tracks cross over the slough.
- C-R-2 At a point in Chadbourne Slough about 100 feet downstream from where the Southern Pacific Railroad tracks cross over the slough.

NOTE: "S" codes shown for receiving water stations are for reference only, and generally correspond to monitoring stations used in the Bureau of Reclamation study (1977-1981) published as: "Suisun Marsh Management Study, Water Quality Observations on the Effects of Wastewater Discharge to Duck Clubs and Sloughs in the Suisun Marsh," by the U.S. Dept. of Interior, Bureau of Reclamation, August 1985.

#### D. LAND OBSERVATIONS

<u>Station</u>	<u>Description</u>
P-1 through P-8	Points located at the corners and at midpoints along the perimeter (fenceline) of the wastewater treatment facilities.
L-1 through L-8	Points located at the corners and midpoints around the sludge drying bed area.

NOTE: A sketch showing the locations of all receiving water and land observations stations shall be submitted with each monthly report, and with each annual report.

## II. SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

- A. The schedule of sampling, measurements and analysis shall be that given as Table 1, and footnotes.
- B. The frequency of effluent monitoring specified by Table 1 for 1986 Basin Plan Table IV-1 parameters (metals & cyanide, weekly; phenols & PAHs, monthly) may be reduced by the Executive Officer if, after at least two years of consecutive monitoring at the indicated frequencies, results demonstrate consistent compliance with the effluent limits for these parameters, by a reasonable margin.
- C. Monitoring in addition to that specified by this Self-Monitoring Program may be required by Wastewater Reclamation Requirements adopted by the Board for the use of Discharger's reclaimed effluent.

## III. MODIFICATIONS TO PART A

Paragraph C.5. of Part A is revised to read:

Average weekly and average monthly values are calculated as the sum of all daily discharge values measured during the specified period (calendar week or calendar month), divided by the number of daily discharge values measured during that specified period.

## IV. REPORTING REQUIREMENTS


- A. General Reporting Requirements are described in section C. of this Board's "Standard Provisions and Reporting Requirements", dated December 1986.
- B. Self-Monitoring Reports for each calendar month shall be submitted monthly, by the fifteenth day of the following month. The required contents of these reports are described in section G.4. of Part A.
- C. An Annual Report for each calendar year shall be submitted to the Board by January 30 of the following year. The required contents of the annual report are described in section G.5. of Part A.
- D. Any overflow, bypass or significant non-compliance incident that may endanger health or the environment shall be reported according to sections G.1 and G.2. of Part A.

E. Miscellaneous Reporting

1. The following flow data shall be reported on a daily basis, except part f.:
  - a. Influent, average daily flow (Station A);
  - b. Influent, maximum and minimum flow rates, and the times of occurrence (A);
  - c. Effluent, total daily flow (E-001-A);
  - d. Effluent, flow to Boynton Slough Outfall;
  - e. Effluent, flow to Irrigation (E-004);
  - f. Effluent, flow to duck club ponds (E-002 & E-003, seasonally). May be reported as monthly totals.
2. Monthly reports shall include percent removals for BOD and Total Suspended Solids, in accordance with Effluent Limitation B.2.
3. Phytoplankton monitoring shall include an inventory of blue-green algae, diatoms, flagellate algae, and green algae with associated forms. Phytoplankton shall be identified by species, and quantified in cells per milliliter.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 90 - 101
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

  
STEVEN R. RITCHIE,  
Executive Officer

Effective Date 7/18/90

Attachments:

Table 1 with footnotes

A. Location Map, Receiving Water Monitoring Stations.

TABLE 1

## SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATION	A		E-001-A			E-001-S			-	All C Sta.		E002 & E003	E-004
TYPE OF SAMPLE	C-24	cont	G	C-24	cont	G	C-24	cont		G		Flow	cont
Flow Rate (mgd)		(1) cont			(1) cont							(1) E	(1) Cont
BOD, 5-day, 20°C (mg/l & kg/day)	3/W			3/W									
Total Suspended Solids (mg/l & kg/day)	3/W			3/W									
Settleable Solids (ml/l-hr)			D										
Oil and Grease (mg/l & kg/day)				(2) M									
Chlorine Residual, (3) & Dosage (mg/l & kg/day)					(4) cont			(5) cont					
Coliform, Total (MPN/100 ml)			(6) D										
Toxicity, 96-hr Bioassay (% Survival)							(7) M						
Turbidity (NTU)			D										
pH (units)			D					(8) cont		2W			
Temperature (°C)			D			D				2W			
Dissolved Oxygen (mg/l & % Saturation)			D			D				2W			
Sulfides, Total & D'solved (if DO < 2.0 mg/l) (mg/l)			D			D							
Arsenic (mg/l or ug/l, & kg/day)				W									
Cadmium (mg/l or ug/l, & kg/day)				W									
Chromium (mg/l or ug/l, & kg/day)				W									
Copper (mg/l or ug/l, & kg/day)				W									
Lead (mg/l or ug/l, & kg/day)				W									
Mercury (mg/l or ug/l, & kg/day)				W									
Nickel (mg/l or ug/l, & kg/day)				W									
Selenium (mg/l or ug/l, & kg/day)				W									
Silver (mg/l or ug/l, & kg/day)				W									
Zinc (mg/l or ug/l, & kg/day)				W									
Cyanide (mg/l or ug/l, & kg/day)				W									

TABLE 1

## SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATION	A		E-001-A			E-001-S				All C Sta.		All P&L Sta.	
TYPE OF SAMPLE	C-24	cont	G	C-24	cont	G	C-24	cont		G		O	
Phenolic Compounds (mg/l or ug/l, & kg/day)				M									
PAHs (9) (mg/l or ug/l, & kg/day)				(9) M									
Ammonia Nitrogen (mg/l & kg/day)				W						2W			
Nitrate Nitrogen (mg/l & kg/day)				W						2W			
Total Organic Nitrogen (mg/l & kg/day)				W						2W			
Total Phosphate (mg/l & kg/day)				W						2W			
Un-ionized Ammonia Nitrog. (mg/l)										2W			
Total Dissolved Solids (mg/l) (10)										(10) 2W			
Conductivity (umhos/cm)										2W			
Hardness (mg/l as CaCO <sub>3</sub> )										2W			
Chlorophyll-a (ug/l)										2W			
Phytoplankton (cells/ml) ( $\geq 5 \mu$ )										M			
Silica (mg/l)										M			
Secchi Disk (inches)										2W			
All Applicable Standard Observations			D							2W		M	

## LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample  
 C-24 = composite sample - 24-hour  
 Cont = continuous sampling  
 O = observation  
 Flow = flow measurement

TYPES OF STATIONS

E = waste effluent stations  
 A = treatment facility influent stations  
 C = receiving water stations  
 P = treatment facilities perimeter stations  
 L = basin and/or pond levee stations

FREQUENCY OF SAMPLING

E = each occurrence  
 D = once each day  
 W = once each week  
 M = once each month

3/W = 3 days per week  
 5/W = 5 days per week  
 2/M = 2 days per month  
 2/M = 2 days per month

2H = every 2 hours  
 2D = every 2 days  
 2W = every 2 weeks  
 3M = every 3 months  
 Cont = continuous



TABLE 1 FOOTNOTES

- (1) Flows shall be monitored continuously, and the following shall be reported on a daily basis, except part f.:
  - a. Influent, average daily flow (A);
  - b. Influent, max. & min. flow rates, and times of occurrence;
  - c. Effluent, total flow (E-001-A);
  - d. Effluent, flow to Boynton Slough outfall;
  - e. Effluent, flow to Irrigation (E-004);
  - f. Effluent, flow distributed to duck club ponds (seasonal, E-002 & E-003). May be reported as monthly totals.
- (2) Oil and Grease sampling shall consist of three (3) grab samples taken at equal intervals during the sampling day, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within an accuracy of plus or minus five percent (5%). The combined sample shall be analyzed as a composite.
- (3) Chlorine dosage shall be reported in mg/l and kg/day on a daily basis.
- (4) Chlorine residual (maximum and minimum) shall be reported in mg/l on a daily basis.
- (5) Chlorine residual in de-chlorinated effluent (E-001-S) shall be reported in mg/l on a daily basis. If a violation is detected, the maximum and average concentrations and duration of each non-zero residual event shall be reported, along with the cause and corrective actions taken.
- (6) Coliform sampling frequency may be reduced to 3/W (three days per week) during any week when effluent will not be used for irrigation.
- (7) Toxicity shall be determined using flow-through bioassays with undiluted effluent, as specified in Provision E.7. Results shall be reported as percent survival.

The pH, Dissolved Oxygen and Temperature of the test stream shall be monitored on at least a daily basis for the duration of the bioassay tests, and the results reported.
- (8) pH shall be monitored continuously, and the minimum and maximum pH values for each day shall be reported.
- (9) Polynuclear Aromatic Hydrocarbons (PAHs), as identified by EPA Method 610, or equivalent approved EPA Methods. If a sample exceeds the PAH effluent limitation, the concentrations of individual constituent PAHs shall be reported.
- (10) Total Dissolved Solids measurements may be based on conductivity measurements.

DISTRICT  
FACILITIES

CR-1

C6

C3

C1

C4

C2

C5

CR-2

SLOUGH

MONTEZUMA

SLOUGH

N

0 1/4 1/2  
SCALE IN MILES

LOCATION MAP:  
FAIRFIELD-SUISUN SEWER DISTRICT  
RECEIVING WATER  
MONITORING STATIONS

SMP ATTACHMENT A